

1. TRANSMITTED DATA

1-1 CHANNEL MESSAGES

Status (Hex)	Second (Hex)	Third (Hex)	Description	ENA
1000 nnnn (8n)	0kkk kkkk (kk)	0100 0000 (40)	Note Off kkk kkkk=24..108 (61Keys+Transpose)	A
1001 nnnn (9n)	0kkk kkkk (kk)	0vvv vvvv (vv)	Note On kkk kkkk=24..108 (61Keys+Transpose) vvv vvvv=1..127	A
1010 nnnn (An)	0kkk kkkk (kk)	0vvv vvvv (vv)	Poly Key Pressure (Recorded Seq Data)	T,Q
1011 nnnn (Bn)	0000 0000 (00)	0mmm mmmm (mm)	Bank Select(MSB) (BANK Key, etc)	*1 P
1011 nnnn (Bn)	0000 0001 (01)	0vvv vvvv (vv)	Modulation 1 (Joystick(+Y))	C
1011 nnnn (Bn)	0000 0010 (02)	0vvv vvvv (vv)	Modulation 2 (Joystick(-Y))	C
1011 nnnn (Bn)	0000 0100 (04)	0000 0000 (00)	Foot Pedal (Select Main Scale)	C
1011 nnnn (Bn)	0000 0100 (04)	0111 1111 (7F)	Foot Pedal (Select Sub Scale)	C
1011 nnnn (Bn)	0000 0111 (07)	0vvv vvvv (vv)	Volume (Assign Pedal, etc)	C
1011 nnnn (Bn)	0000 1010 (0A)	0vvv vvvv (vv)	Panpot (by A:B Panpot)	C
1011 gggg (Bg)	0000 1100 (0C)	0vvv vvvv (vv)	Effect Control (Assignable Pedal)	C
1011 nnnn (Bn)	0010 0000 (20)	0111 1111 (11)	Bank Select(LSB) (BANK Key, etc)	*1 P
1011 nnnn (Bn)	0100 0000 (40)	0000 0000 (00)	Hold 1 Off (Damper Pedal)	C
1011 nnnn (Bn)	0100 0000 (40)	0111 1111 (7F)	Hold 1 On (Damper Pedal)	C
1011 nnnn (Bn)	0ccc cccc (cc)	0vvv vvvv (vv)	Control Data (Recorded Seq Data) ccc cccc=00..127	C,Q
1100 nnnn (Cn)	0ppp pppp (pp)	---- ----	Program Change (Prog Change)	*1 P
1101 nnnn (Dn)	0vvv vvvv (vv)	---- ----	Channel Pressure (Aftertouch)	T
1110 nnnn (En)	0bbb bbbb (bb)	0bbb bbbb (bb)	Pitch Bend (Joystick(X))	C

nnnn : MIDI Channel Number(0-15) Usually Global Channel. When using sequencer, each track's channel.

gggg : Always Global Channel Number(0-15)

vvvv : Value

ENA = A : Always Enabled

C : Enabled when Control Filter in GLOBAL Mode is ENA

P : Enabled when Program Filter in GLOBAL Mode is ENA

T : Enabled when Aftertouch Filter in GLOBAL Mode is ENA

Q : Enabled when sequencer is playing (transmitting) or recording (receiving)

T,Q: T and Q

C,Q: C and Q

*1 : Program : MIDI Out (Hex)

A11..A88: mm,ll,pp = 38,00,00..3F

B11..B88: 38,00,40..7F

C11..C88: 00,01,00..3F

D11..D88: 00,01,40..7F

E11..E88: 00,02,00..3F

F11..F88: 00,03,00..3F (User)

Dr11 : 3E,00,00

Dr12 : 3E,00,01

Dr13 : 3E,00,08

Dr14 : 3E,00,10

Dr15 : 3E,00,18

Dr16 : 3E,00,19

Dr17 : 3E,00,1B

Dr18 : 3E,00,20

Dr21 : 3E,00,28

Dr22 : 3E,00,30

Dr23 : 3E,00,38

Dr24 : 3E,00,40

Dr25 : 3E,00,41

Dr26 : 3E,00,42

Dr27 : 3E,00,48

Dr28 : 3E,00,49

1-2 SYSTEM COMMON MESSAGES

Status (Hex)	Second (Hex)	Third (Hex)	Description
1111 0010 (F2)	0sss ssss (ss)	0ttt tttt (tt)	Song Position Pointer

1111 0011 (F3)	0000 ssss (ss)	----	sss ssss : Least significant (LSB) *2 ttt tttt : Most significant (MSB) *2 Song Select ssss : Song Number = 0..9
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Transmitted when in Song mode (Internal Clock)

*2 : For Example Time Signature = 4/4, 8/8
tt,ss = 00,10 / Measure

1-3 SYSTEM REALTIME MESSAGES

Status (Hex)	Description	
1111 1000 (F8)	Timing Clock	*3
1111 1010 (FA)	Start	*3
1111 1011 (FB)	Continue	*3
1111 1100 (FC)	Stop	*3
1111 1110 (FE)	Active Sensing	

*3 : Transmits when in Song or Backing Sequence mode (Internal Clock)

1-4 UNIVERSAL SYSTEM EXCLUSIVE MESSAGES (DEVICE INQUIRY REPLY)

Byte (Hex)	Description
1111 0000 (F0)	Exclusive Status
0111 1110 (7E)	Non Realtime Message
0000 gggg (0g)	MIDI Global Channel (Device ID)
0000 0110 (06)	Inquiry Message
0000 0010 (02)	Identity Reply
0100 0010 (42)	KORG ID (Manufactures ID)
0011 1001 (39)	i-series ID (Family Code LSB)
0000 0000 (00)	(Family Code MSB)
0000 0100 (04)	(Member Code LSB)
0000 0000 (00)	(Member Code MSB)
0*** **** (**)	Firmware Number (Minor Version LSB)
0000 0000 (00)	(Minor Version MSB)
0*** **** (**)	Specification Number (Major Version LSB)
0000 0000 (00)	(Major Version MSB)
1111 0111 (F7)	END OF EXCLUSIVE

Transmits when INQUIRY MESSAGE REQUEST Received

1-5 STRUCTURE OF KORG SYSTEM EXCLUSIVE MESSAGES

1st Byte = 1111 0000 (F0) : Exclusive Status		
2nd Byte = 0100 0010 (42) : KORG ID		
3rd Byte = 0011 gggg (3g) : Format ID g:Global ch.	SysEx Header	
4th Byte = 0011 1100 (39 or 4D) : i Series ID		
5th Byte = 0fff ffff (ff) : Function Code (See Func Code List)		
6th Byte = 0ddd dddd (dd) : Data		
:		
LastByte = 1111 0111 (F7) : End of Exclusive EOX		

1-6 Transmitted Function Code List

Func	Description	R	D	E	C
42	MODE DATA	o			
4E	MODE CHANGE				o *4
4C	ALL PROGRAM PARAMETER DUMP	o			
64	ALL ARRANGEMENT PARAMETER DUMP	o	o		
65	4 USER STYLE DATA DUMP	o			
66	ALL BACKING SEQUENCE DATA DUMP	o	o		
51	GLOBAL DATA DUMP	o	o		
26	RECEIVED MESSAGE FORMAT ERROR	o		o	
23	DATA LOAD COMPLETED (ACK)			o	
24	DATA LOAD ERROR (NAK)			o	
67	CHORD				

Transmitted when

R : Request message is received
D : Data dump from Global mode (Doesn't respond to Exclusive ENA,DIS)
E : Exclusive message is received
C : Mode or number is changed by switch

Some Request Messages are not received in some modes. See 2-6.

* When transmitting a series of exclusive messages to iS40/50, wait until [DATA LOAD COMPLETED] or [WRITE COMPLETED] is received.

*4 : Transmitted when Mode is changed.

2. RECOGNIZED RECEIVE DATA

2-1 CHANNEL MESSAGES

Status (Hex)	Second (Hex)	Third (Hex)	Description	ENA
1000 nnnn (8n)	0kkk kkkk (kk)	0xxx xxxx (xx)	Note Off	A
1001 nnnn (9n)	0kkk kkkk (kk)	0000 0000 (00)	Note Off	A
1001 nnnn (9n)	0kkk kkkk (kk)	0vvv vvvv (vv)	Note On vvv vvvv=1..127	A
1010 nnnn (An)	0kkk kkkk (kk)	0vvv vvvv (vv)	Poly Key Pressure (For Seq.Recording)	T,Q
1011 nnnn (Bn)	0000 0000 (00)	0mmm mmmm (mm)	Bank Select(MSB)	*1 P
1011 nnnn (Bn)	0000 0001 (01)	0vvv vvvv (vv)	Modulation1 Depth (Pitch Modulation)	C
1011 nnnn (Bn)	0000 0010 (02)	0vvv vvvv (vv)	Modulation2 Depth (Cutoff Modulation)	C
1011 nnnn (Bn)	0000 0100 (04)	00vv vvvv(<40)	Foot Pedal Off (Select Main Scale)	C
1011 nnnn (Bn)	0000 0100 (04)	01vv vvvv(>3F)	Foot Pedal On (Select Sub Scale)	C
1011 nnnn (Bn)	0000 0110 (06)	0vvv vvvv (vv)	Data Entry (MSB) (For RPN Edit)	C
1011 nnnn (Bn)	0000 0111 (07)	0vvv vvvv (vv)	Volume	C
1011 nnnn (Bn)	0000 1010 (0A)	0vvv vvvv (vv)	Panpot (A:B Panpot)	C
1011 nnnn (Bn)	0000 1011 (0B)	0vvv vvvv (vv)	Expression	C
1011 gggg (Bg)	0000 1100 (0C)	0vvv vvvv (vv)	Effect Control	C
1011 nnnn (Bn)	0010 0000 (20)	0111 1111 (11)	Bank Select(LSB)	*1 P
1011 nnnn (Bn)	0010 0110 (26)	0vvv vvvv (vv)	Data Entry (LSB) (For RPN Edit)	C
1011 nnnn (Bn)	0100 0000 (40)	00xx xxxx(<40)	Hold1 Off (Damper Off)	C
1011 nnnn (Bn)	0100 0000 (40)	01xx xxxx(>3F)	Hold1 On (Damper On)	C
1011 nnnn (Bn)	0100 1000 (48)	0vvv vvvv (vv)	Release Time (Perf. Edit Release Time) *4	C
1011 nnnn (Bn)	0100 1000 (49)	0vvv vvvv (vv)	Attack Time (Perf. Edit Attack Time) *4	C
1011 nnnn (Bn)	0100 1000 (4A)	0vvv vvvv (vv)	Brightness (Perf. Edit Cutoff) *4	C
1011 nnnn (Bn)	0101 1011 (5B)	0vvv vvvv (vv)	Reverb Level (Send C Level)	C
1011 gggg (Bg)	0101 1100 (5C)	0000 0000 (00)	Effect1 Level (Effect1 Off)	C
1011 gggg (Bg)	0101 1100 (5C)	0xxx xxxx(>00)	Effect1 Level (Effect1 On)	C
1011 nnnn (Bn)	0101 1101 (5D)	0vvv vvvv (vv)	Chorus Level (Send D Level)	C
1011 gggg (Bg)	0101 1110 (5E)	0000 0000 (00)	Effect2 Level (Effect2 Off)	C
1011 gggg (Bg)	0101 1110 (5E)	0xxx xxxx(>00)	Effect2 Level (Effect2 On)	C
1011 nnnn (Bn)	0110 0000 (60)	0000 0000 (00)	DATA Increment (For RPN Edit)	C
1011 nnnn (Bn)	0110 0001 (61)	0000 0000 (00)	DATA Decrement (For RPN Edit)	C
1011 nnnn (Bn)	0110 0100 (64)	0000 00rr (0r)	RPN Parameter Number (LSB)	*3 A
1011 nnnn (Bn)	0110 0101 (65)	0000 0000 (00)	RPN Parameter Number (MSB)	*3 A
1011 nnnn (Bn)	0111 1000 (78)	0000 0000 (00)	All Sound Off	C
1011 nnnn (Bn)	0111 1001 (79)	0000 0000 (00)	Reset All Controllers	C
1011 nnnn (Bn)	0ccc cccc (cc)	0vvv vvvv (vv)	Control Data (For Seq.Recording) ccc cccc=00..127	C,Q
1011 gggg (Bg)	0111 1010 (7A)	0000 0000 (00)	Local Control Off	A
1011 gggg (Bg)	0111 1010 (7A)	0111 1111 (7F)	Local Control On	A
1011 nnnn (Bn)	0111 1011 (7B)	0000 0000 (00)	All Notes Off	A
1011 nnnn (Bn)	0111 110x (7x)	0000 0000 (00)	Omni Mode Off/On (All Notes Off)	A
1011 nnnn (Bn)	0111 1110 (7E)	000m mmmm(<11)	Mono Mode On (All Notes Off) m mmmm=0..16	A
1011 nnnn (Bn)	0111 1111 (7F)	0000 0000 (00)	Poly mode On (All Notes Off)	A

1100 nnnn (Cn)	0ppp pppp (pp)	---- ----	Program Change	(Prog,Comb CHG)	*1,*2	P
1101 nnnn (Dn)	0vvv vvvv (vv)	---- ----	Channel Pressure	(Aftertouch)		T
1110 nnnn (En)	0bbb bbbb (bb)	0bbb bbbb (bb)	Bender Change	(Pitch Bend)		C

nnnn : MIDI Channel Number(0-15) Usually Global Channel.
When in SONG Mode, each track's channel.

gggg : Always Global Channel Number(0-15)

x : Don't care

ENA : Same as TRANSMITTED DATA

*1 : MIDI In (Hex): Program
mm,ll,pp = 00,00,00..3F : A11..A88
00,00,40..7F : B11..B88
00,01,00..3F : C11..C88
00,01,40..7F : D11..D88
00,02,00..3F : E11..D88
00,03,00..3F : F11..E88(USER)
00,04,00 : Dr11
00,04,01..07 : Dr12
00,04,00..0F : Dr13
00,04,10..17 : Dr14
00,04,18 : Dr15
00,04,19..1A : Dr16
00,04,1B..1F : Dr17
00,04,20..27 : Dr18
00,04,28..2F : Dr21
00,04,30..37 : Dr22
00,04,38..3F : Dr26
00,04,40 : Dr23
00,04,41 : Dr24
00,04,42..47 : Dr25
00,04,48 : Dr27
00,04,49 : Dr28
00,04,4A..7F : Dr11
38,xx,00..3F : A11..A88
38,xx,40..7F : B11..B88
39,xx,00..3F : A11..A88
39,xx,40..7F : B11..B88
3A..3D,xx,xx : OFF
3E,xx,00 : Dr11
3E,xx,01..07 : Dr12
3E,xx,00..0F : Dr13
3E,xx,10..17 : Dr14
3E,xx,18 : Dr15
3E,xx,19..1A : Dr16
3E,xx,1B..1F : Dr17
3E,xx,20..27 : Dr18
3E,xx,28..2F : Dr21
3E,xx,30..37 : Dr22
3E,xx,38..3F : Dr26
3E,xx,40 : Dr23
3E,xx,41 : Dr24
3E,xx,42..47 : Dr25
3E,xx,48 : Dr27
3E,xx,49 : Dr28
3E,xx,4A..7F : Dr11
3F,xx,xx : OFF

xx : Don't care

*2 : After processing (while Exclusive = ENA) transmits exclusive message [DATA LOAD COMPLETED]
or [DATA LOAD ERROR].

*3 : rr = 0 : Pitch Bend Sensitivity
= 1 : Fine Tune (When Received Ch = Global Ch, Master Tune)
= 2 : Coarse Tune (Transpose)

*4 : vv < 40: Fast or Dark
= 40: No change
> 40: Slow or Bright

2-2 SYSTEM COMMON MESSAGES

Status (Hex)	Second (Hex)	Third (Hex)	Description
1111 0010 (F2)	0sss ssss (ss)	0ttt tttt (tt)	Song Position Pointer
1111 0011 (F3)	000s ssss (ss)	----	Song Select

Received when in SONG mode (External Clock)

2-3 SYSTEM REALTIME MESSAGES

Status (Hex)	Description
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1111 1000 (F8)	Timing Clock	*5
1111 1010 (FA)	Start	*5
1111 1011 (FB)	Continue	*5
1111 1100 (FC)	Stop	*5
1111 1110 (FE)	Active Sensing	

*5 : Received when in SONG mode (External Clock)

2-4 UNIVERSAL SYSTEM EXCLUSIVE MESSAGE (NON REALTIME)

Byte (Hex)	Description	
1111 0000 (F0)	EXCLUSIVE STATUS	
0111 1110 (7E)	NON REALTIME MESSAGE	
0ggg gggg (gg)	MIDI CHANNEL	*6
0000 aaaa (0a)	SUB ID 1	*7
0000 00bb (0b)	SUB ID 2	*7
1111 0111 (F7)	END OF EXCLUSIVE	

*6 : gg = 0..F : Received if Global Channel
= 7F : Received on any Channel

*7 : a,b = 06,01 : INQUIRY MESSAGE REQUEST
= 09,01 : GENERAL MIDI MODE ON

(Received anytime except when Seq playing/recording, or when DATA FILER page is selected)

2-5 UNIVERSAL SYSTEM EXCLUSIVE MESSAGE (REALTIME)

Byte (Hex)	Description	
1111 0000 (F0)	EXCLUSIVE STATUS	
0111 1111 (7F)	REALTIME MESSAGE	
0ggg gggg (gg)	MIDI CHANNEL	*6
0000 0100 (04)	SUB ID 1	
0000 00bb (0b)	SUB ID 2	*8
0vvv vvvv (vv)	VALUE(LSB)	*8
0mmm mmmm (mm)	VALUE(MSB)	*8
1111 0111 (F7)	END OF EXCLUSIVE	

*8 : b = 01 : MASTER VOLUME (mm,vv = 00,00..7F,7F : Min..Max)
= 02 : MASTER BALANCE (mm,vv = 00,00..40,00..7F,7F : L..Center..R)

2-6 SYSTEM EXCLUSIVE MESSAGES

* Not received when Sequencer is playing, recording, or when the DATA FILER page is selected.

Function Code List

Func	Description	G	P	A	O	R
12	MODE REQUEST	o	o	o	o	42
1C	ALL PROGRAM PARAMETER DUMP REQUEST	A	o	o	o	4C
30	ALL ARRANGEMENT PARAMETER DUMP REQUEST	A	o	o	o	64
31	4 USER STYLE DATA DUMP REQUEST	A	o	o	o	65
32	ALL BACKING SEQUENCE DATA DUMP REQUEST	A	o	o	o	66
0E	GLOBAL DATA DUMP REQUEST	A	o	o	o	51
10	PROGRAM PARAMETER DUMP REQUEST		o			40
4C	ALL PROGRAM PARAMETER DUMP	A	o	o	o	23
64	ALL ARRANGEMENT PARAMETER DUMP	A	o	o	o	23
65	4 USER STYLE DATA DUMP	A	o	o	o	23
66	ALL BACKING SEQUENCE DATA DUMP	A	o	o	o	23
40	PROGRAM PARAMETER DUMP	A	o			23
51	GLOBAL DATA DUMP	A	o	o	o	23
4E	MODE CHANGE	A	o	o	o	23
60	PARAMETER CHANGE		o	o		23
41	ARRANGEMENT PARAMETER CHANGE			o		23

Received when in

G : Global Mode

(A=Does not respond to Exclusive ENA, DIS on DATA DUMP page)

P : Program Mode

A : Arrangement Mode

O : All Other Mode

R : Reply Function Number

(Transmitted after the message has been received.)

3. MIDI EXCLUSIVE FORMAT (R:Receive, T:Transmit)

See 1-5 'STRUCTURE OF KORG SYSTEM EXCLUSIVE MESSAGES'

Byte	Description	
F0,42,3g,39	EXCLUSIVE HEADER	
0001 0010	MODE REQUEST	12H

1111 0111	EOX
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Receives this message, and transmits Func=42 message.

(2) ALL PROGRAM PARAMETER DUMP REQUEST R

Byte	Description
F0,42,3g,39(4D)	EXCLUSIVE HEADER
0001 1100	ALL PROGRAM PARAMETER DUMP REQUEST 1CH
1111 0111	EOX

Receives this message, and transmits Func=4C or Func=24 message.

(3) ALL ARRANGEMENT PARAMETER DUMP REQUEST R

Byte	Description
F0,42,3g,39(4D)	EXCLUSIVE HEADER
0011 0000	ALL ARRANGEMENT PARAMETER DUMP REQUEST 30H
1111 0111	EOX

Receives this message, and transmits Func=64 or Func=24 message.

(4) 4 USER STYLE DATA DUMP REQUEST R

Byte	Description
F0,42,3g,39(4C)	EXCLUSIVE HEADER
0011 0001	ALL STYLE DATA DUMP REQUEST 31H
0000 00nn	STYLE BLOCK (0:U11-14,1:U15-U18,2:U21-24,3:U25-28)
1111 0111	EOX

Receives this message, and transmits Func=65 or Func=24 message.

(5) ALL BACKING SEQUENCE DATA DUMP REQUEST R

Byte	Description
F0,42,3g,39(4D)	EXCLUSIVE HEADER
0011 0010	ALL BACKING SEQUENCE DATA DUMP REQUEST 32H
1111 0111	EOX

Receives this message, and transmits Func=66 or Func=24 message.

(6) GLOBAL DATA DUMP REQUEST R

Byte	Description
F0,42,3g,39(4D)	EXCLUSIVE HEADER
0000 1110	GLOBAL DATA DUMP REQUEST 0EH
1111 0111	EOX

Receives this message, and transmits Func=51 or Func=24 message.

(7) PROGRAM DATA DUMP REQUEST R

Byte	Description
F0,42,3g,39(4D)	EXCLUSIVE HEADER
0001 0000	PROGRAM DATA DUMP REQUEST 10H
1111 0111	EOX

(8) PROGRAM WRITE REQUEST R

Byte	Description
F0,42,3g,39(4D)	EXCLUSIVE HEADER
0001 0001	PROGRAM WRITE REQUEST 11H
0ppp pppp	Write Program Number (0-63:U11-U88, 64-65:Dr27-Dr28)
1111 0111	EOX

(9) PROGRAM PARAMETER DUMP R

Byte	Description
F0,42,3g,39(4D)	EXCLUSIVE HEADER
0100 0000	PROGRAM PARAMETER DUMP 40H
0ddd dddd	Data (NOTE 1,2)
:	:
1111 0111	EOX

Receives this message & data, and transmits Func=23 or Func=24 message.

Receives Func=10 message, and transmits this message & data.

(10) ALL PROGRAM PARAMETER DUMP R,T

Byte	Description
F0,42,3g,39(4D)	EXCLUSIVE HEADER
0100 1100	ALL PROGRAM PARAMETER DUMP 4CH
0ddd dddd	Data (NOTE 1,3)
:	:
1111 0111	EOX

Receives this message & data, and transmits Func=23 or Func=24 message.
Receives Func=1C message, and transmits this message & data.

(11) ALL ARRANGEMENT PARAMETER DUMP R,T

Byte	Description
F0,42,3g,39(4D)	EXCLUSIVE HEADER
0110 0100	ALL ARRANGEMENT PARAMETER DUMP 64H
0ddd dddd	Data (NOTE1,4)
:	:
1111 0111	EOX

Receives this message & data, and transmits Func=23 or Func=24 message.
Receives Func=30 message, and transmits this message & data.
Transmits this message & data when DATA DUMP is executed

(12) ALL STYLE DATA DUMP R,T

Byte	Description
F0,42,3g,39(4D)	EXCLUSIVE HEADER
0110 0101	ALL STYLE DATA DUMP 65H
0ddd dddd	Style Header (NOTE 1,5-1)
:	:
0ddd dddd	Style Data (NOTE 1,5-2)
:	:
1111 0111	EOX

Receives this message & data, and transmits Func=23 or Func=24 message.
Receives Func=31 message, and transmits this message & data.

(13) ALL BACKING SEQUENCE DATA DUMP R,T

Byte	Description
F0,42,3g,39(4D)	EXCLUSIVE HEADER
0110 0110	ALL BACKING SEQUENCE DATA DUMP 66H
0sss ssss	Backing Sequence Data Size (NOTE 7-1)
:	:
0ddd dddd	Control Data (NOTE 1,7-2)
:	:
0ddd dddd	Backing Sequence Data (NOTE 1,7-3)
:	:
1111 0111	EOX

Receives this message & data, and transmits Func=23 or Func=24 message.
Receives Func=32 message, and transmits this message & data.
Transmits this message & data when DATA DUMP is executed.

(14) GLOBAL DATA DUMP R,T

Byte	Description
F0,42,3g,39(4D)	EXCLUSIVE HEADER
0101 0001	GLOBAL DATA DUMP 51H
0ddd dddd	Data (NOTE 1,8)
:	:
1111 0111	EOX

Receives this message & data, and transmits Func=23 or Func=24 message.
Receives Func=0E message, and transmits this message & data.
Transmits this message & data when DATA DUMP is executed.

(15) MODE CHANGE R,T

Byte	Description
F0,42,3g,39	EXCLUSIVE HEADER
0100 1110	MODE CHANGE 4EH
0000 mmmmm	Mode Data (NOTE 10)
1111 0111	EOX

Receives this message & data, changes the Mode, and transmits Func=23 or Func=24.
When the mode is changed by switch, this message & data is transmitted.

(16) ARRANGEMENT PARAMETER CHANGE R

Byte	Description
F0,42,3g,3C	EXCLUSIVE HEADER
0100 0001	PARAMETER CHANGE 41H
0ppp pppp	Parameter Number (TABLE 8)

0vvv vvvv	Value (LSB bit6-0)	(NOTE 11)
0vvv vvvv	Value (MSB bit13-7)	(NOTE 11)
1111 0111	EOX	

(17) PARAMETER CHANGE R

Byte	Description	
F0,42,3g,3C	EXCLUSIVE HEADER	
0110 0000	PARAMETER CHANGE	60H
0ppp pppp	Parameter Page Number	(TABLE 9)
0000 0ppp	Parameter Position Number	(TABLE 9)
0vvv vvvv	Parameter Value (LSB bit6-0)	(NOTE 11)
0vvv vvvv	Parameter Value (MSB bit13-7)	(NOTE 11)
1111 0111	EOX	

(18) MODE DATA T

Byte	Description	
F0,42,3g,39	EXCLUSIVE HEADER	
0100 0010	MODE DATA	42H
0000 mmmm	Mode Data	(NOTE 10)
0000 0000		
1111 0111	EOX	

Receives Func=12 message, and transmits this message & data.

(19) MIDI IN DATA FORMAT ERROR T

Byte	Description	
F0,42,3g,39(4D)	EXCLUSIVE HEADER	
0010 0110	MIDI IN DATA FORMAT ERROR	26H
1111 0111	EOX	

Transmits this message when there is an error in the MIDI IN message (for example, if data length is other than expected).

(20) DATA LOAD COMPLETED (ACK) T

Byte	Description	
F0,42,3g,39(4D)	EXCLUSIVE HEADER	
0010 0011	DATA LOAD COMPLETED	23H
1111 0111	EOX	

Transmits this message when DATA LOADING and PROCESSING have been completed.

(21) DATA LOAD ERROR (NAK) T

Byte	Description	
F0,42,3g,39(4D)	EXCLUSIVE HEADER	
0010 0100	DATA LOAD ERROR	24H
1111 0111	EOX	

Transmits this message when DATA LOADING and PROCESSING have not been completed (for example, if memory is protected).

(22) WRITE COMPLETED T

Byte	Description	
F0,42,3g,39(4D)	EXCLUSIVE HEADER	
0010 0001	WRITE COMPLETED	21H
1111 0111	EOX	

Transmits this message when DATA WRITE via MIDI has been completed.

(23) WRITE ERROR T

Byte	Description	
F0,42,3g,39(4D)	EXCLUSIVE HEADER	
0010 0010	WRITE COMPLETED	22H
1111 0111	EOX	

Transmits this message when DATA WRITE via MIDI has not been completed.

(24) CHORD T

Byte	Description	
F0,42,3g,39	EXCLUSIVE HEADER	
0110 0111	CHORD	67H
0000 rrrr	Root (C=0)	
0000 bbbb	Bass (C=0)	
0ccc cccc	Chord type (LSB)	(NOTE 13)

000c cccc	Chord type (MSB)	(NOTE 13)
0ttt tttt	Tension note(s) (LSB)	(NOTE 14)
000t tttt	Tension note(s) (MSB)	(NOTE 14)
1111 0111	EOX	

NOTE 1 : DATA CONVERT METHOD (INTERNAL DATA<-->MIDI DATA)
(for NOTE 2, 3, 4, 5-1, 5-2, 6-2, 6-3, 7-2, 7-3, 8, 9, 10)
Internal 7byte data <--convert--> MIDI 8 byte data
example) Internal data(bit image) MIDI data(bit image)

Aaaaaaaa	0ABCDEFG
Bbbbbbbb	0aaaaaaa
Cccccccc	0bbbbbbb
Dddddddd	0ccccccc
Eeeeeeee	0ddddd
Ffffffff	0eeeeeee
Gggggggg	0ffffff
Hhhhhhhh	0ggggggg
Iiiiiiii	0HIJKLMN
:	0hhhhhhh
:	:
Vvvvvvvv	0VW00000
Wwwwwwww	0vvvvvvv
	0wwwwwww
	11110111 (EOX=7FH)

NOTE 2 : PROGRAM PARAMETER DUMP FORMAT
[PROGRAM Parameter No.00], .. , [PROGRAM Parameter No.163], (See TABLE 1, NOTE 1)

NOTE 3 : ALL PROGRAM PARAMETER DUMP FORMAT (See TABLE 1, NOTE 2)
[Prog.D11], .. , [Prog.D88], [Prog.Dr27], [Prog.Dr28],
[DRUM PARAMETER Dr27], [DRUM PARAMETER Dr28] (See TABLE 3)

NOTE 4 : ALL ARRANGEMENT PARAMETER DUMP FORMAT (See TABLE 5, NOTE 1)
[ARR11], .. , [ARR88]

NOTE 5 : 4 USER STYLE DATA DUMP FORMAT
5-1: Style Header (24Byte) (See TABLE 6-3, NOTE 1)
5-2: Style Block No(1Byte)
5-3: Style Data (3328..65496Byte) (See TABLE 6-1, TABLE 6-2, NOTE 1)

NOTE 7 : ALL BACKING SEQUENCE DATA DUMP FORMAT
7-1: Backing Sequence Data Size (2Byte) 4Step(16Byte)/1Size (See 7-3)
[Data Size (bit6..0)],
[Data Size (bit13..7)]
7-2: Control Data Dump Format (2292Byte) (See TABLE 7-1, NOTE 1)
[Control Data (BSQ Size(195) x 10 = 1950Byte)],
[BSQ0-Tr.1 Addr (2Byte)], .. , [BSQ0-Tr.16 Addr], [BSQ0-Tempo Track Addr],
[BSQ1-Tr.1 Addr], .. , [BSQ9-Tr.16 Addr], [BSQ9-Tempo Track Addr] (340Byte),
[End Addr (2Byte)]
7-3: Backing Sequence Data Dump Format (See TABLE 7-2, NOTE 1)
[B.Sequence 1st Data(4Byte)], .. , [BSQ nth Data]
+-----+
n : BSQ Data Step = 0 - 40000

NOTE 8 : GLOBAL DATA DUMP FORMAT (See TABLE 2, NOTE 1)
[Global Data]

NOTE 10 : mmmm = 4 : GLOBAL 6 : SONG
10 : ARRANGEMENT 11 : BACKING SEQUENCE

NOTE 11 : VALUE DATA FORMAT (Use with PARAMETER CHANGE, DRUM KIT PARAMETER CHANGE)

Bit15-13 of Value Data is the Sign Flag, and each bit has the same value
Value Data SSSHHHHH LLLLLLLL (S=Sign H,L=13bit data)
MIDI Data 0SHHHHHL 0LLLLLLL

NOTE 12 : kk = 00: Drum Kit 1
01: Drum Kit 2

NOTE 13 : CHORD TYPE

Type	MSB	LSB
No Chord	0000 0000	0000 0000
dim	0000 0000	0100 1001
sus2	0000 0001	0000 0101
m	0000 0001	0000 1001
major	0000 0001	0001 0001
sus4	0000 0001	0010 0001
aug	0000 0010	0001 0001
m6	0000 0101	0000 1001
6	0000 0101	0001 0001
m7b5	0000 1000	0100 1001

7b5	0000 1000	0101 0001
m7	0000 1001	0000 1001
7	0000 1001	0001 0001
7sus4	0000 1001	0010 0001
aug7	0000 1010	0001 0001
dimM7	0001 0000	0100 1001
M7b5	0001 0000	0101 0001
mM7	0001 0001	0000 1001
M7	0001 0001	0001 0001
M7sus4	0001 0001	0010 0001
augM7	0001 0010	0001 0001

NOTE 14 : TENSION NOTE(S)

Tension	MSB	LSB
b9	0000 0000	0000 0010
9	0000 0000	0000 0100
#9	0000 0000	0000 1000
11	0000 0000	0010 0000
#11	0000 0000	0100 0000
b13	0000 0010	0000 0000
13	0000 0100	0000 0000

PROGRAM PARAMETERS (TABLE 1)

No.	PARAMETER	DATA(Hex) : VALUE	VDF-1
00	PROGRAM NAME (Head)	20..7F : ' '..<-'	50 CUTOFF VALUE 00..63 : 00..99
:	:	:	51 KBD TRACK KEY 00..7F : C-1..G9
09	PROGRAM NAME (Tail)		52 CUTOFF KBD TRACK 9D..63 : -99..99
	OSCILLATOR		53 EG INTENSITY 00..63 : 00..99
10	OSCILLATOR MODE	0,1,2 *1	54 EG TIME KBD TRACK 00..63 : 00..99
11	ASSIGN	bit0=0:POL, =1:MON	55 EG TIME VEL.SENSE 00..63 : 00..99
	HOLD	bit1=0:OFF, =1:ON	56 EG INT.VEL.SENSE 9D..63 : -99..99
12	OSC-1 M/D.SOUND(LSB)	0..518	VDF-1 EG
13	OSC-1 M/D.SOUND(MSB)	*14	57 ATTACK TIME 00..63 : 00..99
14	OSC-2 M/D.SOUND(LSB)	0..518	58 ATTACK LEVEL 9D..63 : -99..99
15	OSC-2 M/D.SOUND(MSB)	*14	59 DECAY TIME 00..63 : 00..99
16	OSC-1 OCTAVE	FE..01 : 32'..4'	60 BREAK POINT 9D..63 : -99..99
17	OSC-2 OCTAVE	FE..01 : 32'..4'	61 SLOPE TIME 00..63 : 00..99
18	INTERVAL	F4..0C : -12..12	62 SUSTAIN LEVEL 9D..63 : -99..99
19	DETUNE	CE..32 : -50..50	63 RELEASE TIME 00..63 : 00..99
20	DELAY START	00..63 : 00..99	64 RELEASE LEVEL 9D..63 : -99..99
	PITCH EG		VDA-1
21	START LEVEL	9D..63 : -99..99	65 OSCILLATOR LEVEL 00..63 : 00..99
22	ATTACK TIME	00..63 : 00..99	66 KBD TRACK KEY 00..7F : C-1..G9
23	ATTACK LEVEL	9D..63 : -99..99	67 AMP. KBD TRACK INT. 9D..63 : -99..99
24	DECAY TIME	00..63 : 00..99	68 AMP. VELOCITY SENSE 9D..63 : -99..99
25	RELEASE TIME	00..63 : 00..99	69 EG TIME KBD TRACK 00..63 : 00..99
26	RELEASE LEVEL	9D..63 : -99..99	70 EG TIME VEL.SENSE 00..63 : 00..99
27	TIME VELOCITY SENSE	9D..63 : -99..99	VDA-1 EG
28	LEVEL VELOCITY SENSE	9D..63 : -99..99	71 ATTACK TIME 00..63 : 00..99
	CUTOFF MG		72 ATTACK LEVEL 00..63 : 00..99
29	WAVEFORM	bit0..2 : 0..5 *2	73 DECAY TIME 00..63 : 00..99
	OSC-1 MG ENABLE	bit5=0:OFF, =1:ON	74 BREAK POINT 00..63 : 00..99
	OSC-2 MG ENABLE	bit6=0:OFF, =1:ON	75 SLOPE TIME 00..63 : 00..99
	KEY SYNC	bit7=0:OFF, =1:ON	76 SUSTAIN LEVEL 00..63 : 00..99

30	FREQUENCY	00..63 : 00..99	77	RELEASE TIME	00..63 : 00..99
31	DELAY	00..63 : 00..99		OSC-1 EG TIME KBD TRACK, VEL. SW & POLARITY	
32	INTENSITY	00..63 : 00..99	78	F.EG TIME K.T SW&POL	bit0..7 *3
	AFTERTOUCH		79	F.EG TIME VEL.SW&POL	bit0..7 *3
33	PITCH BEND RANGE	F4..0C : -12..12	80	A.EG TIME K.T SW&POL	bit0..7 *3
34	VDF CUTOFF	9D..63 : -99..99	81	A.EG TIME VEL.SW&POL	bit0..7 *3
35	VDF MG INT	00..63 : 00..99		OSC-1 SEND	
36	VDA AMPLITUDE	9D..63 : -99..99		D SEND LEVEL	bit0..3 : 0..9
	JOYSTICK		82	C SEND LEVEL	bit4..7 : 0..9
37	PITCH BEND RANGE	F4..0C : -12..12		COLOR-1	
38	VDF SWEEP INT.	9D..63 : -99..99	83	INTENSITY	00..63 : 00..99
39	VDF MG INT.	00..63 : 00..99	84	VELOCITY SENSE	9D..63 : -99..99
	OSC-1 PITCH EG			VDF-1, VDA-1 KBD TRACK MODE	
40	PITCH EG INT	9D..63 : -99..99	85	F-1, A-1 KBD TRACK MODE	*4
	OSC-1 PITCH MG			OSC-1 PANPOT	
41	WAVEFORM	bit0..2 : 0..5 *2	86	A:B PAN	00..1E, FF *5
	KEY SYNC	bit7=0:OFF, =1:ON		OSC-2 PARAMETER	
42	FREQUENCY	00..63 : 00..99	87	SAME AS OSC-1 (40..86)	
43	DELAY	00..63 : 00..99	:		
44	FADE IN	00..63 : 00..99	133		
45	INTENSITY	00..63 : 00..99	134	(RESERVE)	00
46	FREQ MOD BY KBD TRK	9D..63 : -99..99		EFFECT PARAMETER	
47	INTENSITY MOD BY AT	00..63 : 00..99	135		
48	INTENSITY MOD BY JS	00..63 : 00..99	:		
49	FREQ MOD BY AT+JS	00..09 : 0..9	163		

GLOBAL PARAMETERS (TABLE 2)

No.	PARAMETER	DATA(Hex) : VALUE
GLOBAL PARAMETER		
00	MASTER TUNE	CE..32 : -50..50
01	KEY TRANSPOSE	F4..0C : -12..12
02	DAMPER POLARITY ETC	*27
03	ASSIGNABLE PEDAL 1	00..33 *8
04	RESERVED	
05	MAIN SCALE TYPE	00..17 *9
06	MAIN SCALE KEY	00..0B : C..B
07 : 18	RESERVED	
19	VELOCITY CURVE	0..7 : 1..8
20	AFTER TOUCH CURVE	0..7 : 1..8
21	SUB SCALE TYPE	00..17 *9
22	SUB SCALE KEY	00..0B : C..B
23	EC5 A	00..33 *8
:	:	
27	EC5 E	
28	CHORD RECOGNITION	00-02 :

*1 : 0 : SINGLE
1 : DOUBLE
2 : DRUMS

*2 : 0 : TRIANGLE
1 : UP SAW
2 : DOWN SAW
3 : SQUARE1
4 : RANDOM
5 : SQUARE2

*3 : bit0 : ATTACK TIME SW =0:OFF, =1:ON
bit1 : DECAY TIME SW =0:OFF, =1:ON
bit2 : SLOPE TIME SW =0:OFF, =1:ON
bit3 : RELEASE TIME SW =0:OFF, =1:ON
bit4 : ATTACK TIME POLARITY =0:+, =1:-
bit5 : DECAY TIME POLARITY =0:+, =1:-
bit6 : SLOPE TIME POLARITY =0:+, =1:-
bit7 : RELEASE TIME POLARITY=0:+, =1:-

	(0:Fingered1,1:Fingered2,2:One Finger)	
29	AUTO CHORD SCAN	00:OFF,01:ON
30	ARRANGE SPLIT	00..7F : C-1..G9
31	ARRANGE/BSEQ XPOSE	F5..0B : -C#..+B
32	USER SCALE 1	CE..32 : -50..50
:	:	
199	USER SCASE 14	
200	RESERVED	
:		
211		
212	MIDI IN VELOCITY	0:NORMAL 1..127:FIXED VEL.
213	MIDI IN OCTAVE	*23
214	RESERVED	
:		
221		
222	LOCK PARAMETER	bit0..1 *26
223	RESERVED	

DRUM PARAMETERS (TABLE 3)

No.	PARAMETER	DATA(Hex) : VALUE
USER KIT 1-INDEX #0		
00	INST NO.	00:OFF, 01..:INT
02	EXCLUSIVE ASSIGN	0:OFF, 1~16:Group, 17:SLF
03	A:B PAN	bit0..4 *10
04	TUNE	88..78 :-120..120
05	PITCH	
06	LEVEL	9D..63 : -99..99
07	RESERVED	
08	DECAY	9D..63 : -99..99
09	D SEND LEVEL	bit0..3: 0..9
	C SEND LEVEL	bit4..7: 0..9
DRUM KIT 1-INDEX #1 .. DRUM KIT 2-#59		
08	SAME AS USER KIT 1-#0(00..06)x(60x2-1)	
:		
839		

*6 : A11 ..A88 : 00..3F
 B11 ..B88 : 40..7F
 C11 ..C88 : 80..BF
 D11 ..D88 : C0..FF
 E11 ..E88 : 00..3F
 F11 ..F88 : 00..3F
 Dr27,Dr28 : 40,41

*8 : 0 : OFF
 1 : START/STOP
 2 : SYNC START/STOP
 3 : RESET
 4 : INTRO/ENDING 1
 5 : INTRO/ENDING 2
 6 : FILL 1
 7 : FILL 2

*4 : bit0,1 .. VDF +--
 0 : OFF
 1 : LOW
 2 : HIGH
 3 : ALL
 bit4,5 .. VDA +--

*5 : 00 : L15
 :
 OF : CNT
 :
 1E : R15
 1F : PRG (When in SONG Mode)
 FF : OFF

*7 : bit0 : PROGRAM CHANGE =0:DIS, =1:ENA
 bit1 : DAMPER =0:DIS, =1:ENA
 bit2 : AFTERTOUCH =0:DIS, =1:ENA
 bit3 : CONTROL CHANGE =0:DIS, =1:ENA

bit7=1 : A11 ..A88
 : B11 ..B88
 : C11 ..C88
 : D11 ..D88
 : E11 ..E88
 : Dr11..Dr26
 =0 : F11 ..F88
 : Dr27..Dr28

Program is selected by *6 and *7(bit7)

*23 : bit0..3 E..2 : U-2..U+2
 bit4..7 E..2 : L-2..L+2

```

8 : VARIATION 1
9 : VARIATION 2
A : VARIATION 3
B : VARIATION 4
C : CHORD HOLD
D : BASS INVERSION
E : SCALE CHANGE
F : ARRANGEMENT UP
10 : ARRANGEMENT DOWN
11 : PROGRAM UP
12 : PROGRAM DOWN
13 : VARIATION UP
14 : VARIATION DOWN
15 : PUNCH IN/OUT
16 : EFFECT 1 ON/OFF
17 : EFFECT 2 ON/OFF
18 : DRUM MUTE
19 : PERC MUTE
1A : BASS MUTE
1B : ACC1 MUTE
1C : ACC2 MUTE
1D : ACC3 MUTE
1E : KB VOLUME (ASSIGNABLE PEDAL ONLY)
1F : EXPRESSION (ASSIGNABLE PEDAL ONLY)
20 : VDF CUTOFF (ASSIGNABLE PEDAL ONLY)
21 : EFFECT CONTROL (ASSIGNABLE PEDAL ONLY)
22 : DATA ENTRY (ASSIGNABLE PEDAL ONLY)
23 : Inhibit
24 : Inhibit
25 : KBD LOCK
26 : TAP TEMPO
27 : LOWER MEMORY ON/OFF
28 : SUSTAIN ON/OFF
29 : FADE IN/OUT
2A : ENSEMBLE ON/OFF
2B : MASTER VOLUME (ASSIGNABLE PEDAL ONLY)
2C : QUARTER TONE
2D : DAMPER (ASSIGNABLE PEDAL ONLY)
2E : CHORD LATCH (ASSIGNABLE PEDAL ONLY)
2F : SYNC STOP
30 : ACC1-3 MUTE/PLAY
31 : LOW/UP1/UP2 MUTE
32 : KEYBOARD SET UP (iS40 only)
33 : KEYBOARD SET DOWN (iS40 only)

*27 : bit0 : Damper Polarity      =0:-,    =1:+
      bit3 : JOYSTICK X LOW      =0:PRG,  =1:DIS
      bit4 : JOYSTICK X UP1      =0:PRG,  =1:DIS
      bit5 : JOYSTICK X UP2      =0:PRG,  =1:DIS
      bit6,7 = 0 : ECHO BACK OFF
              = 1 : ECHO BACK MIDI
              = 2 : ECHO BACK HOST (iS40 only)

*9 : 0 : EQUAL TEMP
      1 : EQUAL TEMP 2
      2 : PURE MAJOR
      3 : PURE MINOR
      4 : ARABIC
      6 : WERKMEISTER
      7 : KIRNBERGER
      8 : SLENDRO
      9 : PELOG
      A : USER SCALE 1
      B : USER SCALE 2
      C : USER SCALE 3
      D : USER SCALE 4
      E : USER SCALE 5
      F : USER SCALE 6
10 : USER SCALE 7
11 : USER SCALE 8
12 : USER SCALE 9
13 : USER SCALE 10
14 : USER SCALE 11
15 : USER SCALE 12
16 : USER SCALE 13
17 : USER SCALE 14

*10 : bit0..4 = 00 : L15
           :      :
           0F : CNT
           :      :
           1E : R15
           1F : OFF

*11 : bit0,1= 0 : OFF
           1 : INT
           2 : EXT
           3 : BOTH
      bit2,3= 0 : Play, = 1 : Mute, = 2 : Solo

*12 : bit0..5 10..18 : 1/4 .. 9/4
           20..2F : 1/8 .. 16/8
           30..3F : 1/16 .. 16/16

      bit7 = 0 : High Resolution
            1 : Low Resolution

```

*14 : When set to Single/Double Mode

0000 : A.Piano 1
:
0518 : Explosion

When set to Drum Mode
The number is Fixed.

ARRANGEMENT PARAMETERS (TABLE 5)

No.	PARAMETER	DATA(Hex) : VALUE	ACC 1..3 PARAMETERS	
00 : 15	ARRANGE NAME (Head) : ARRANGE NAME (Tail)	20..7F : ' '..<-'	63 : 86	SAME AS DRUMS
16	CATEGORY			
17	SYTLE NO.	000..07F: A11..B88	UPPER1,UPPER2,LOWER PARAMETERS	
18		100..10F: U11..U28	87	SAME AS DRUMS
19	INITIAL VARIATION	00..03 : VAR 1..4	:	
20			110	
21	INITIAL TEMPO	0A..D2 : 40..240	UPPER1 VELOCITY WINDOW	
22	KEYBOARD ASSIGN	00..0A : *16	111	TOP 01..7F : 1..127
23	SPLIT POINT	24..60 : C2..C7	112	BOTTOM 01..7F : 1..127
	ENSEMBLE		UPPER2 VELOCITY WINDOW	
24	ENSEMBLE TYPE	bit0..6 : *22	113	TOP 01..7F : 1..127
	ENSEMBLE SW	bit7=0:OFF, =1:ON	114	BOTTOM 01..7F : 1..127
25	TRANPOSE	F5..0B : -C#..+B	LOWER VELOCITY WINDOW	
26	MANUAL DRUM KIT	00..15 :Dr11..Dr28	115	TOP 01..7F : 1..127
	SWITCHES		116	BOTTOM 01..7F : 1..127
27	DYNAMIC VELOCITY	bit0=0:OFF, =1:ON	117 : 145	EFFECT PARAMETERS *20
	TEMPO LOCK	bit1=0:OFF, =1:ON		
	KBD1 DAMPER ENABLE	bit2=0:OFF, =1:ON		
	KBD2 DAMPER ENABLE	bit3=0:OFF, =1:ON		
	CHORD SCANNING TYPE			
28	CHORD SCAN LOW	bit0=0:OFF, =1:ON		
	CHORD SCAN HIGH	bit1=0:OFF, =1:ON		
	BASS INVERSION	bit2=0:OFF, =1:ON		
	CHORD HOLD	bit3=0:OFF, =1:ON		
	CHORD LATCH	bit4=0:OFF, =1:ON		
29 : 32	DEFAULT DRUM MAPPING	00..07 : MAP1..8		
33	Kick Designation	00..03 : A..D		
34	Snare Designation	00..03 : A..D		
35 : 36	Reserved			
37	FILL1	00..0C :OFF..DOWN		
38	FILL2	00..0C :OFF..DOWN		
	DRUM PARAMETERS			
39	PROG		*17	
40	BANK			
41	VOL	00..7F : 0..127		

42	PAN	*5
43	C SEND LEVEL	bit0..3 : 0..9,PRG
	D SEND LEVEL	bit4..7 : 0..9,PRG
44	OCTAVE	FE..02 : -2..+2
45	OUT STATUS	*11
46	WRAP-AROUND	FF..0B : STY..11
PERCUSSION PARAMETERS		
47	SAME AS DRUMS	
:		
54		
BASS PARAMETERS		
55	SAME AS DRUMS	
:		
62		

		UPPER1	UPPER2	LOWER
*16	00: FULL	on	off	off
	01: FULL	on	on	off
	02: SPLIT	on	off	on
	03: M.DRUMS	off	off	off
	04: FULL	off	off	off
	05: FULL	off	on	off
	06: SPLIT	off	off	off
	07: SPLIT	on	off	off
	08: SPLIT	off	on	off
	09: SPLIT	on	on	off
	0A: SPLIT	off	off	on

*17	BANK = 00,	PROG = 00..7F : A11..A88,B11..B88
	= 01,	= 00..7F : C11..C88,D11..D88
	= 02,	= 00..3F : E11..E88
	= 03,	= 00..3F : F11..F88
	= 04,	= 00..7F : Dr11..Dr28

*22	00: Duet
	01: Close
	02: Open1
	03: Open2
	04: Octave
	05: Power Ens.
	06: Fourths
	07: Block
	08: Brass Ens.
	09: Reed Ens.

STYLE CONTROL DATA (TABLE 6-1)

No.	PARAMETER	DATA(Hex) : VALUE	INTRO1 CHORD VARIATION1	PARAMETERS
00	STYLE NAME (Head)	20..7F : ' '..<-'	117	KEY *18
:	:	:	:	:
15	STYLE NAME (Tail)		118	LENGTH 00..10 : 0..16
16	CATEGORY		INTRO1 CHORD VARIATION2	PARAMETERS
17	SYTLE TYPE	0.USER CREATED	119	KEY *18
		1.BUILT-IN	120	LENGTH 00..10 : 0..16
		2.CARD OR DISK	INTRO2	PARAMETERS
18	TEMPO	0A..D2 : 40..240	121	SAME AS INTRO1
19	TIME SIGNATURE	Hi Res only *12	:	
	NOTE RETRIGGER SWITCH		124	
20	BASS	bit2=0:OFF, =1:ON	ENDING 1..2	PARAMETERS
	ACC1	bit3=0:OFF, =1:ON	125	SAME AS INTRO1
	ACC2	bit4=0:OFF, =1:ON	:	
	ACC3	bit5=0:OFF, =1:ON	132	
	NOTE SHIFT UP RANGE		FILL 1..2	PARAMETERS
21	BASS	00..0B : 0..11	133	SAME AS INTRO1
22	ACC1	00..0B : 0..11	:	

23	ACC2	00..0B : 0..11	140		
24	ACC3	00..0B : 0..11	VARIATION 1 CHORD VARIATION TABLE		
TENSION AVAILABLE			141	Major	00..05 : 1..6
25	ACC1	bit3=0:OFF, =1:ON	142	M6	00..05 : 1..6
	ACC2	bit4=0:OFF, =1:ON	143	M7	00..05 : 1..6
	ACC3	bit5=0:OFF, =1:ON	144	M7b5	00..05 : 1..6
26	RESERVE	00	145	sus4	00..05 : 1..6
:			146	sus2	00..05 : 1..6
44			147	M7sus4	00..05 : 1..6
DRUM PARAMETERS			148	minor	00..05 : 1..6
45	PROG	*17	149	m6	00..05 : 1..6
46	BANK		150	m7	00..05 : 1..6
47	VOL	00..7F : 0..127	151	m7b5	00..05 : 1..6
48	PAN	*5	152	mM7	00..05 : 1..6
PERCUSSION PARAMETERS			153	7th	00..05 : 1..6
49	SAME AS DRUMS		154	7b5	00..05 : 1..6
:			155	7sus4	00..05 : 1..6
52			156	dim	00..05 : 1..6
BASS PARAMETERS			157	dimM7	00..05 : 1..6
53	SAME AS DRUMS		158	aug	00..05 : 1..6
:			159	aug7	00..05 : 1..6
56			160	augM7	00..05 : 1..6
ACC 1..3 PARAMETERS			VARIATION 2..4 CHORD VARIATION TABLE		
57	SAME AS DRUMS		161	SAME AS VARIATION1	
:			:		
68			270		
VARIATION1, CHORD VARIATION1 PARAMETERS					
69	KEY	*18	*18 : 00 : C MAJOR		
			01 : C MINOR		
70	LENGTH	00..10 : 0..16	02 : C#MAJOR		
			03 : C#MINOR		
VARIATION1 CHORD VARIATION2..6 PARAMETERS			:		
71	SAME AS VARIATION1 CHORD VARIATION1		16 : B MAJOR		
:			17 : B MINOR		
80					
VARIATION 2..4 PARAMETERS					
81	SAME AS VARIATION1				
:					
116					

INTRO1 CHORD VARIATION TABLE			VARIATION 2..4 DATA ADDRESS	
221	Major	00..01 : 1..2	553	SAME AS VARIATION1 DATA ADDRESS
222	M6	00..01 : 1..2	:	
223	M7	00..01 : 1..2	588	ENDING 1..2 DATA ADDRESS
224	M7b5	00..01 : 1..2		
225	sus4	00..01 : 1..2	589	SAME AS VARIATION1 DATA ADDRESS
226	sus2	00..01 : 1..2	:	
227	M7sus4	00..01 : 1..2	612	FILL 1..2 DATA ADDRESS
228	minor	00..01 : 1..2		
229	m6	00..01 : 1..2	613	SAME AS VARIATION1 DATA ADDRESS

230	m7	00..01 : 1..2	:	
231	m7b5	00..01 : 1..2	636	
232	mM7	00..01 : 1..2		PATTERN 0 DATA ADDRESS
233	7th	00..01 : 1..2	637	DATA ADDRESS (LSB)
234	7b5	00..01 : 1..2	638	DATA ADDRESS (MSB)
235	7sus4	00..01 : 1..2		PATTERN 1..99 DATA ADDRESS
236	dim	00..01 : 1..2	639	SAME AS PATTERN 0
237	dimM7	00..01 : 1..2	:	
238	aug	00..01 : 1..2	836	
239	aug7	00..01 : 1..2	837	END PATTERN ADDR(L)
240	augM7	00..01 : 1..2	838	END PATTERN ADDR(M)

INTRO2 CHORD VARIATION TABLE				
241	SAME AS INTRO1		STYLE DATA (TABLE 6-2)	
:			No.	PARAMETER DATA(Hex) : VALUE
260			STYLE 1 DATA	
ENDING 1..2 CHORD VARIATION TABLE			0	DATA (1-L) *15
261	SAME AS INTRO1		1	DATA (1-H) *15
:			2	DATA (2-L) *15
300			3	DATA (2-H) *15
FILL 1..2 CHORD VARIATION TABLE			STYLE 2 DATA ..	
301	SAME AS INTRO1		4	SAME AS STYLE1
:			:	
340				

PATTERN 0 CONTROL DATA				
341	BEAT	:	*12	STYLE HEADER (TABLE 6-3)
342	LENGTH	01..63	: 1..99	No. PARAMETER DATA(Hex) : VALUE
PATTERN 1..99 CONTROL DATA				STYLE 1
343	SAME AS PATTERN 0			0 STYLE1 ADDRESS
:				:
540				3
VARIATION1 ACC1 DATA ADDRESS				4 STYLE1 SIZE
541	DATA ADDRESS (LSB)			5
542	DATA ADDRESS (MSB)			STYLE 2..4
VARIATION1 ACC 2..3 DATA ADDRESS				6 SAME AS STYLE1
:				:
543	SAME AS VARIATION1 ACC1 DATA ADDRESS			23
:				
546				
VARIATION1 BASS, DRUMS, PERC. DATA ADDRESS				
547	SAME AS VARIATION1 DATA ADDRESS			
:				
552				

BACKING SEQUENCE CONTROL DATA (TABLE 7-1)				
No.	PARAMETER	DATA(Hex) : VALUE	EXTRA TRACK 1 CONTROL DATA	
BSEQ 0 CONTROL DATA			46	PROGRAM NUMBER *17
00	BSEQ NAME (Head)	20..7F : ' '..<-'	47	PROGRAM BANK
:	:	:	48	VOLUME 00..7F : 0..127
09	BSEQ NAME (Tail)		49	PANPOT *5
10	ARRANGEMENT NO.	00..3F : 11..88	50	C SEND LEVEL bit0..3 : 0..9,PRG
11				D SEND LEVEL bit4..7 : 0..9,PRG

12	STYLE NO.	00..37 : 11..68	51	TRACK STATUS	*11
13		71..84	52	BEND RANGE	00..0C : 00..12
14	VARIATION	00..03 : VAR 1..4	53	KEY TRANSPOSE	E8..18 : -24..24
15			54	DETUNE	CE..32 : -50..50
16	TEMPO	0A..D2 : 40..240	55	PROTECT	: OFF/ON
17	KEYBOARD ASSIGN	*16	56	MIDI CHANNEL	00..0F : 1..16
	CHORD SCANNING TYPE		57	VELOCITY WINDOW TOP	01..7F : 1..127
18	CHORD SCAN LOW	bit0=0:OFF, =1:ON	58	VELOCITY WIN. BOTTOM	01..7F : 1..127
	CHORD SCAN HIGH	bit1=0:OFF, =1:ON	59	KEY WINDOW TOP	00..7F : C-1..G9
	BASS INVERSION	bit2=0:OFF, =1:ON	60	KEY WINDOW BOTTOM	00..7F : C-1..G9
	CHORD HOLD	bit3=0:OFF, =1:ON		EXTRA TRACK 2..8 CONTROL DATA	
	CHORD LATCH	bit4=0:OFF, =1:ON	61	SAME AS TRACK 1	
19	UPP1 PROGRAM NUMBER	*17	165		
20	UPP1 PROGRAM BANK		166	EFFECT PARAMETER	*20
21	UPP1 OCTAVE	FE..02 : -2..+2	194		
22	UPP2 PROGRAM NUMBER	*17	195	LOW PROGRAM NUMBER	*17
23	UPP2 PROGRAM BANK		196	LOW PROGRAM BANK	
24	UPP2 OCTAVE	FE..02 : -2..+2	197	LOW OCTAVE	FE..02 : -2..+2
25	KEYBOARD TRK STATUS	*21-1		BSEQ 1..9 CONTROL DATA	
26	CONTROL TRK STATUS	*21-1	198	SAME AS BSEQ 0	
27	CHORD TRK STATUS	*21-1	1952		
28	AUTOTEMPO	0A..D2 : 40..240		BSEQ TRACK1 DATA ADDRESS	
29	BEAT	Hi Res only *12	1953	DATA ADDRESS (LSB)	
30	SPLIT POINT	24..60 : C2..C7	1954	DATA ADDRESS (MSB)	
31	TRANSPOSE	F5..0B :-C#..+B		BSEQ0 TRACK 2..16 DATA ADDRESS	
	SWITCHES		1955	SAME AS BSEQ0 TRACK1 DATA ADDRESS	
32	DYNAMIC VELOCITY	bit0=0:OFF, =1:ON	:		
33	RESERVE	00	1984		
:				BSEQ0 TEMPO TRACK DATA ADDRESS	
39			1985	SAME AS BSEQ0 TRACK1 DATA ADDRESS	
40	METRONOME SWITCH	*21-2	1986		
41	METRONOME LEVEL	00..63 : 0..99		BSEQ 1..9 DATA ADDRESS	
42	METRONOME PAN	*5	1987	SAME AS BSEQ0 TRACK DATA ADDRESS	
43	METRONOME LEAD-IN	0..2 : 0..2	:		
44	NEXT BSEQ NUMBER	*21-3	2292		
45	AUTO START	*21-4	2293	END ADDRESS (LSB)	
			2294	END ADDRESS (MSB)	

*21-1 : Track Status

00 : MUTE
01 : PLAY

*21-3 : Next B.Seq Number

FF : OFF
00 : BSeq 0
:
09 : BSeq 9

*21-2 : Metronome Switch

00 : OFF
01 : ON
02 : REC

*21-4 : Auto Start

00 : OFF
01 : ON

B.SEQUENCE DATA (TABLE 7-2)

No.	PARAMETER	DATA(Hex) : VALUE
BACKING SEQUENCE DATA 1		
0	DATA (1-L)	*19
1	DATA (1-H)	*19
2	DATA (2-L)	*19
3	DATA (2-H)	*19
BACKING SEQUENCE DATA 2..		
4	SAME AS BACKING SEQUENCE DATA 1 (0..3)	
:		

*19-1-1 : 0..55 : P11..P68, U1..U4, C1..C4

*19-1-2 : 0 : Variation1
:
3 : Variation4
4 : Intro1
5 : Intro2
6 : Ending1
7 : Ending2
8 : Fill1
9 : Fill2

*19 : BACKING SEQUENCE DATA FORMAT

*19-1 : BACKING CONTROL EVENT

(Internal data order)

tttttttt,10iiiiit,vvvvvvvv,wwwwwww

10ii iii t	tttt tttt	www www	vvvv vvvv
EventID	EventTime	Value 2	Value 1

EventID	Value
0 Arrangement	0..63 11..88
1 Style	0..55 *19-1-1
2 Variation	0..9 *19-1-2
3 Keyboard Assign	0..3 *19-1-3
4 Chord Scan	0..3 *19-1-4
5 Chord Hold	0/1 OFF/ON
6 Bass Inversion	0/1 OFF/ON
7 Transpose	-11..+11 -C#..+B
8 Drum Mute	0/1 MUTE/PLAY
9 Perc.Mute	0/1 MUTE/PLAY
10 Bass Mute	0/1 MUTE/PLAY
11 ACC1 Mute	0/1 MUTE/PLAY
12 ACC2 Mute	0/1 MUTE/PLAY
13 ACC3 Mute	0/1 MUTE/PLAY
14 Drum Map	0..7 1..8
15 KBD1 Program	V1=NUMBER V2 = BANK
16 KBD2 Program	V1=NUMBER V2 = BANK
17 KBD1 Octave	-2..+2
18 KBD2 Octave	-2..+2

*19-1-3 : 0 : SINGLE
1 : LAYER
2 : SPLIT
3 : M.DRUM

*19-1-4 : 0 : OFF
1 : LOWER
2 : UPPER
3 : FULL

*19-2 : CHORD EVENT

11ii iii t	tttt tttt	nnnn nnnn	bbbb rrrr
ChordID	EventTime	TensionNote	Bass Root

ChordID = 0 : No Chord
1 : Major
2 : Major 6th
3 : Major 7th
4 : Major 7th Flatted 5th
5 : Suspended 4th
6 : Suspended 2nd
7 : Major 7th Suspended 4th
8 : Minor
9 : Minor 6th
10 : Minor 7th
11 : Minor 7th Flatted 5th
12 : Minor Major 7th
13 : Dominant 7th

14 : 7th Flatted 5th
 15 : 7th Suspended 4th
 16 : Diminished
 17 : Diminished Major 7th
 18 : Augmented
 19 : Augmented 7th
 20 : Augmented Major 7th

TensionNote = 0000 0001 : Flatted 9th
 0000 0010 : 9th
 0000 0100 : Sharped 9th
 0000 1000 : 11th
 0001 0000 : Sharped 11th
 0010 0000 : Flatted 13th
 0100 0000 : 13th

Bass = 0..11 (C..B)
 Root = 0..11 (C..B)

*15 : SEQUENCE DATA FORMAT

*15-1 NOTE ON/OFF

+-----+-----+-----+-----+ (Internal data order)
 |lvvv vvv t|tttt tttt |kkkk kkk g|gggg gggg | tttttttt,lvvvvvvt,gggggggg,kkkkkkkg
 +-----+-----+-----+-----+

Velocity Event Time Key No. Length
 t : 1/96th quater note unit, t = 1FEH : Tie from previous bar
 g : 1/96th quater note unit, g = 1FEH : Tie to next bar

*15-2 PITCH BEND

+-----+-----+-----+-----+
 |0001 000 t|tttt tttt |0 vvv vvvv|0 vvv vvvv|
 +-----+-----+-----+-----+
 Event Time Value(H) Value(L)

*15-3 AFTER TOUCH

+-----+-----+-----+-----+
 |0010 000 t|tttt tttt | 0000 0000|0 vvv vvvv|
 +-----+-----+-----+-----+
 Event Time Value

*15-4 PROGRAM CHANGE

+-----+-----+-----+-----+
 |0011 000 t|tttt tttt | 0000 00bb|0ppp pppp |
 +-----+-----+-----+-----+
 Event Time Bank Program No.

*15-5 CONTROL CHANGE

+-----+-----+-----+-----+
 |0100 000 t|tttt tttt | 0vvv vvvv|0ccc cccc |
 +-----+-----+-----+-----+
 Event Time Value Control No.

c = 00..65 : Same as MIDI Control Change

= 66 : Assignable Pedal

*15-6 POLY KEY PRESSURE

+-----+-----+-----+-----+
 |0101 000 t|tttt tttt |0 vvv vvvv|0 kkk kkkk|
 +-----+-----+-----+-----+
 Event Time Value Key No.

*15-7 BAR

+-----+-----+-----+-----+
 |0110 00bb |bbbb bbbb |xx ss ssss|0ppp pppp |
 +-----+-----+-----+-----+
 Bar No. Type Beat Pattern No.

x = 00 : Pattern not used
 = 10 : Pattern continued
 = 11 : Pattern start

s = 10..18 : 1/4..9/4
 = 20..2F : 1/8..16/8
 = 30..3F : 1/16..16/16

*15-8 TRACK END

+-----+-----+-----+-----+
 |0111 000 t|tttt tttt |0000 00bb |bbbb bbbb |
 +-----+-----+-----+-----+
 Event Time Last Bar No.

*20 EFFECT PARAMETERS

No.	PARAMETER	DATA(Hex) : VALUE	13:Stereo Delay, 14:Cross Delay
(00)	Effect 1 Type Number	0,1..2F:OFF,1..47	(00) Delay Time L 00..1F4 : 00..500 (Little endian)
(01)	Effect 2 Type Number	0,1..2F:OFF,1..47	(01) Feedback 9D..63 : -99..99
(02)	Effect1 L-Ch Balance	00..64 : 00..100	

(03)	Effect1 R-Ch Balance	00..64 : 00..100	(03)	High Damp	00..63 : 00..99
(04)	Effect2 L-Ch Balance	00..64 : 00..100	(04)	Delay Time R	00..1F4: 00..500 (Little endian)
(05)	Effect2 R-Ch Balance	00..64 : 00..100	(05)	EQ High	F4..0C : -12..12
(06)	Output 3 Panpot	00,01..65 *20-1	(06)	EQ Low	F4..0C : -12..12
(07)	Output 4 Panpot	00,01..65 *20-1	(07)	15:Dual Delay	
(08)	Effect I/O	bit5..0 *20-2	(00)	Delay Time L	00..1F4: 00..500 (Little endian)
(09)	Effect 1 Parameters	*20-3	(01)	Feedback L	9D..63 : -99..99
:			(02)	High Damp L	00..63 : 00..99
(16)			(03)	Delay Time R	00..1F4: 00..500 (Little endian)
(17)	Effect 1 Mod.Source	00..0D *20-4	(04)	Feedback R	9D..63 : -99..99
(18)	Effect 1 Mod.Amount	F1..0F : -15..15	(05)	High Damp R	00..63 : 00..99
(19)	Effect 2 Parameters	*20-3	(06)	16..18:Multitap Delay 1,2,3	
:			(00)	Delay Time A	00..1F4: 00..500 (Little endian)
(26)			(01)	Delay Time B	00..1F4: 00..500 (Little endian)
(27)	Effect 2 Mod.Source	00..0D *20-4	(02)	Feed back	9D..63 : -99..99
(28)	Effect 2 Mod.Amount	F1..0F : -15..15	(03)	EQ Low	F4..0C : -12..12
*20-1 : 00 : Off *20-2 :			(04)	EQ High	F4..0C : -12..12
01 :	R	bit0=0:FX1 L-Ch Off,=1:On	19,20:Stereo Chorus 1,2		
02 :	01:99	bit1=0:FX1 R-Ch Off,=1:On	(00)	Modulation Depth	00..63 : 00..99
:	:	bit2=0:FX2 L-Ch Off,=1:On	(01)	Modulation Speed	00..D8 *20-3-2
64 :	99:01	bit3=0:FX2 R-Ch Off,=1:On	bit0=0:Sin, =1:Tri		
65 :	L	bit4,5=0:Serial	(02)	MG Status *20-3-3	bit1 <- 1
		1:Parallel	bit2 <- 0		
		2:Parallel 2	(04)	Delay Time	00..C8 : 00..200
		3:Parallel 3	(06)	EQ High	F4..0C : -12..12
*20-3 : Effect Parameters (8Byte) 47 Types			(07)	EQ Low	F4..0C : -12..12
offset	PARAMETER	DATA(Hex) : VALUE	(02)	High Damp	00..63 : 00..99
1..3:	Hall, (4,5:Room, 6:Live Stage)		(03)	Pre Delay	00..C8 : 00..200
(00)	Reverb Time	00..61(2F):0.2..9.9(4.9)	(04)	E.R Level	00..63 : 00..99
(01)	(NUL)	00	(05)	(NUL)	00
(02)	High Damp	00..63 : 00..99	(06)	EQ High	F4..0C : -12..12
(03)	Pre Delay	00..C8 : 00..200	(07)	EQ Low	F4..0C : -12..12
(04)	E.R Level	00..63 : 00..99	21:Quadrature Chorus, 22:X Over Chorus		
(05)	(NUL)	00	(00)	Delay Time L	00..FA : 00..250
(06)	EQ High	F4..0C : -12..12	(01)	Delay Time R	00..FA : 00..250
(07)	EQ Low	F4..0C : -12..12	(02)	Modulation Speed	01..63 : 01..99
NUL not listed from here on, Value must be 00.			(03)	Modulation Depth	00..63 : 00..99
7:	Wet Plate, 8:Dry Plate, 9:Spring		(04)	Modulation Waveform	EB..14 *20-3-4
(00)			(06)	EQ Low	F4..0C : -12..12
(01)	Pre Delay	00..C8 : 00..200 (Little endian)	(07)	EQ High	F4..0C : -12..12
(02)	E.R Level	01..0A : 01..10	23:Harmonic Chorus		
(03)	Reverb Time	00..63 : 00..99	(00)	Delay Time A	00..1F4: 00..500 (Little endian)
(04)	High Damp	00..63 : 00..99	(01)	Delay Time B	00..1F4: 00..500 (Little endian)
(06)	EQ Low	F4..0C : -12..12	(02)	Modulation Speed	01..63 : 01..99
(07)	EQ High	F4..0C : -12..12	(03)	Modulation Depth	00..63 : 00..99

10..12:Early Reflection 1,2,3			(06)	Filter Split Point	00..12 : 00..18
(00)	E.R Time	00..46 : 100..800	24:Symphonic Ensemble		
(01)	Pre Delay	00..C8 : 00..200	(00)	Modulation Depth	00..63 : 00..99
(06)	EQ High	F4..0C : -12..12	(06)	EQ High	F4..0C : -12..12
(07)	EQ Low	F4..0C : -12..12	(07)	EQ Low	F4..0C : -12..12
25,26:Flanger1,2, 27:X Over Flanger			38:Chorus-Delay, 39:Flanger-Delay		
(00)	Delay Time	00..C8 : 00..200	(00)	Delay Time	00..32 : 00..50
(01)	Modulation Depth	00..63 : 00..99	(01)	Modulation Speed	01..63 : 01..99
(02)	Modulation Speed	01..63 : 01..99	(02)	Modulation Depth	00..63 : 00..99
(03)	Feedback	9D..63 : -99..99	(03)	Feedback	9D..63 : -99..99
(06)	EQ Low	F4..0C : -12..12	(04)	Delay Time	00..E1 : 00..450
(07)	EQ High	F4..0C : -12..12	(05)	Feedback	9D..63 : -99..99
28:Exciter			40:Delay / Hall		
(00)	Harmonic density	9D..63 : -99..99	(00)	Delay Time	00..1F4 : 00..500 (Little endian)
(01)	Hot Spot	00..09 : 01..10	(01)		
(06)	EQ High	F4..0C : -12..12	(02)	Feedback	9D..63 : -99..99
(07)	EQ Low	F4..0C : -12..12	(03)	High Damp	00..63 : 00..99
29:Enhancer			(04)	Reverb Time	00..61 : 0.2..9.9
(00)	Harmonic Density	01..63 : 01..99	(06)	High Damp	00..63 : 00..99
(01)	Hot Spot	01..14 : 01..20	(07)	Pre Delay	00..96 : 00..150
(02)	Stereo Width	00..63 : 00..99	41:Delay / Room		
(03)	Delay	01..63 : 01..99	(00)	Delay Parameter	*20-3-1
(06)	EQ Low	F4..0C : -12..12	:		
(07)	EQ High	F4..0C : -12..12	(03)		
30:Distortion, 31:Over Drive			(04)	Reverb Time	00..2F : 0.2..4.9
(00)	Drive	01..6F : 01..111	(06)	High Damp	00..63 : 00..99
(01)	Hot Spot	00..63 : 00..99	(07)	Pre Delay	00..96 : 00..150
(02)	Resonance	00..63 : 00..99	42:Delay / Chorus, (43:Delay / Flanger)		
(03)	Distortion Level	00..63 : 00..99	(00)	Delay Parameter	*20-3-1
(06)	EQ Low	F4..0C : -12..12			
(07)	EQ High	F4..0C : -12..12	(03)		
32,33:Phaser 1,(2)			(04)	Depth	00..63 : 00..99
(00)	Modulation Depth	00..63 : 01..99	(05)	Speed	00..D8 *20-3-2
(01)	Modulation Speed	00..D8 : *20-3-2			bit0=0:S,=1:T(<-0)
(02)	MG Status *20-3-3	bit0=0:Sin, =1:Tri	(06)	MG Status *20-3-3	bit1 <- 0
		bit1 <- 1,(0)	bit2 <- 0, (<-1)		
		bit2 <- 0			
(03)	Feedback	9D..63 : -99..99	(07)	Feedback	0,(9D..63:-99..99)
(04)	Hot Spot	00..63 : 00..99	44:Delay / Distortion, 45:Delay / Over Drive		
34:Rotary Speaker			(01)	Delay Time	00..1F4: 00..500 (Little endian)
(00)	Vibrato Depth	00..0F : 00..15	(02)	Feedback	9D..63 : -99..99
(01)	Acceleration	01..0F : 01..15	(03)	Drive	01..6F : 01..111
(02)	Slow Speed	01..63 : 01..99	(04)	Hot Spot	01..63 : 01..99
(03)	Fast Speed	01..63 : 01..99	(05)	Resonance	00..63 : 00..99
35:Auto Pan, (36:Tremolo)			(06)	Distortion Level	01..63 : 01..99

(00)	Depth	00..63 : 00..99	46:Delay / Phaser
(01)	Speed	00..D8 : *20-3-2	(00) Delay Parameter *20-3-1
(02)	MG Status *20-3-3	bit0=0:Sin, =1:Tri	:
		bit1 <- 1, (0)	(03)
		bit2 <- 0	(04) Depth 00..63 : 00..99
(03)	Shape	9D..63 : -99..99	(05) Speed 00..D8 *20-3-2
(06)	EQ High	F4..0C : -12..12	(06) Feedback 9D..63 : -99..99
(07)	EQ Low	F4..0C : -12..12	47:Delay / Rotary Speaker
37:Parametric EQ			(00)
(00)	Low Frequency	00..1D : 00..29	(01) Delay Time 00..1F4: 00..500 (Little endian)
(01)	Low Gain	F4..0C : -12..12	(02) Feedback 9D..63 : -99..99
(02)	Mid Frequency	00..63 : 00..99	(03) Acceleration 01..0F : 01..15
(03)	Mid Gain	F4..0C : -12..12	(04) Slow Speed 01..63 : 01..99
(04)	Mid Width	00..63 : 00..99	(05) Fast Speed 01..63 : 01..99
(05)	High Frequency	00..1D : 00..29	
(06)	High Gain	F4..0C : -12..12	

*20-3-1 : Delay Parameter
Same as 40-(00)..(03)

*20-3-2 : Data(Hex) Value[Hz]
00..63 0.03.. 3.00 (0.03step)
64..C7 3.1 ..13.0 (0.1 step)
C8..D8 14 ..30.0 (1 step)

*20-3-3 : MG Status
bit0 : Waveform =0:Sin, =1:Tri
bit1 : Phase =0:0 degree, =1:180 degree
bit2 : Wave Shape =0:Normal, =1: for Flanger

*20-3-4 : Waveform
EB : T+10
: :
FF : T-10
00 : S-10
: :
14 : S+10

*20-4 : Dynamic Modulation Source
0 : None
1 : Joy Stick (+Y)
2 : Joy Stick (-Y)
3 : Aftertouch
4 : Assignable Pedal 1
5 : Assignable Pedal 2
6 : VDA EG

ARRANGEMENT PARAMETERS (TABLE 8)

No.	TRACK	PARAMETER	VALUE	*1 :
0	----	TEMPO	40..240	0..63 = A11..A88
1	----	CHORD LATCH	0..1	64..127 = B11..B88
2	----	SPLIT POINT	0..127	128..191 = C11..C88
3	----	TRANSPOSE	-11..11	192..255 = D11..D88
4	----	VARIATION BY FILL 1	0..12	256..319 = E11..E88
5	----	VARIATION BY FILL 2	0..12	320..383 = F11..F88 (USER)
6	----	EFFECT 1 TYPE	0..47	384..399 = Dr11..Dr28
7	----	EFFECT 1 LEVEL	0..100	
8	----	EFFECT 2 TYPE	0..47	
9	----	EFFECT 2 LEVEL	0..100	
10	DRUM	PROGRAM	*1	
11	DRUM	VOLUME	0..127	

12	DRUM	PANPOT	-1..31
13	DRUM	C LEVEL	0..10
14	DRUM	D LEVEL	0..10
15	DRUM	MUTE	0..1
16	----	----	----
17	DRUM	OUTPUT STATUS	0..3
18	----	----	----
19	----	----	----
20	PERC	PROGRAM	*1
21	PERC	VOLUME	0..127
22	PERC	PANPOT	-1..31
23	PERC	C LEVEL	0..10
24	PERC	D LEVEL	0..10
25	PERC	MUTE	0..1
26	----	----	----
27	PERC	OUTPUT STATUS	0..3
28	----	----	----
29	----	----	----
30	BASS	PROGRAM	*1
31	BASS	VOLUME	0..127
32	BASS	PANPOT	-1..31
33	BASS	C LEVEL	0..10
34	BASS	D LEVEL	0..10
35	BASS	MUTE	0..1
36	BASS	OCTAVE	-2..2
37	BASS	OUTPUT STATUS	0..2
38	BASS	WRAP AROUND POINT	-1..11
39	----	----	----
40	ACC1	PROGRAM	*1
41	ACC1	VOLUME	0..127
42	ACC1	PANPOT	-1..31
43	ACC1	C LEVEL	0..10
44	ACC1	D LEVEL	0..10
45	ACC1	MUTE	0..1
46	ACC1	OCTAVE	-2..2
47	ACC1	OUTPUT STATUS	0..3
48	ACC1	WRAP AROUND POINT	-1..11
49	----	----	----
50	ACC2	PROGRAM	*1
51	ACC2	VOLUME	0..127
52	ACC2	PANPOT	-1..31
53	ACC2	C LEVEL	0..10
54	ACC2	D LEVEL	0..10
55	ACC2	MUTE	0..1
56	ACC2	OCTAVE	-2..2

57	ACC2	OUTPUT STATUS	0..3
58	ACC2	WRAP AROUND POINT	-1..11
59	----	----	----
60	ACC3	PROGRAM	*1
61	ACC3	VOLUME	0..127
62	ACC3	PANPOT	-1..31
63	ACC3	C LEVEL	0..10
64	ACC3	D LEVEL	0..10
65	ACC3	MUTE	0..1
66	ACC3	OCTAVE	-2..2
67	ACC3	OUTPUT STATUS	0..3
68	ACC3	WRAP AROUND POINT	-1..11
69	----	----	----
70	KBD1	PROGRAM	*1
71	KBD1	VOLUME	0..127
72	KBD1	PANPOT	-1..31
73	KBD1	C LEVEL	0..10
74	KBD1	D LEVEL	0..10
75	KBD1	MUTE	0..1
76	KBD1	OCTAVE	-2..2
77	----	----	----
78	----	----	----
79	KBD1	DAMPER ENABLE	0..1
80	KBD2	PROGRAM	*1
81	KBD2	VOLUME	0..127
82	KBD2	PANPOT	-1..31
83	KBD2	C LEVEL	0..10
84	KBD2	D LEVEL	0..10
85	KBD2	MUTE	0..1
86	KBD2	OCTAVE	-2..2
87	----	----	----
88	----	----	----
89	KBD2	DAMPER ENABLE	0..1

PROGRAM PAGE AND POSITION TO PARAMETER ADDRESS (TABLE 9)

Example

12-13: 12th byte to 13th byte

14.1-3: bit 1 to bit 3 of 14th byte

15.0/4: bit 0 and bit 4 of 15th byte

PAGE			POSITION							
#	DESCRIPTION	OSC	0	1	2	3	4	5	6	7
1	OSC BASIC	-	10	11.0	11.0	18	19	20	-	-
2	OSC TONE	1	OSC	12-13	65	14	40	86	-	-
2	OSC TONE	2	OSC	15-16	112	17	87	133	-	-
3	PITCH EG	-	21	22	23	24	25	26	28	27
4	VDF/SEND	1	OSC	50	53	83	82.0-3	82.4-7	129.0-3	129.4-7
4	VDF/SEND	2	OSC	97	100	130	82.0-3	82.4-7	129.0-3	129.4-7

5	VDF EG	1	57	58	59	60	61	62	63	64
5	VDF EG	2	104	105	106	107	108	109	110	111
6	VDF KBD TR.	1	52	51	85.0-1	54	78.0/4	78.1/5	78.2/6	78.3/7
6	VDF KBD TR.	2	99	98	132.0-1	101	125.0/4	125.1/5	125.2/6	125.3/7
7	VDF VELOCITY	1	OSC	56	84	55	79.0/4	79.1/5	79.2/6	79.3/7
7	VDF VELOCITY	2	OSC	103	131	102	126.0/4	126.1/5	126.2/6	126.3/7
8	VDA EG	1	OSC	71	72	73	74	75	76	77
8	VDA EG	2	OSC	118	119	120	121	122	123	124
9	VDA KBD TR.	1	67	66	85.4-5	69	80.0/4	80.1/5	80.2/6	80.3/7
9	VDA KBD TR.	2	114	113	132.4-5	116	127.0/4	127.1/5	127.2/6	127.3/7
10	VDA VELOCITY	1	OSC	68	70	81.0/4	81.1/5	81.2/6	81.3/7	-
10	VDA VELOCITY	2	OSC	115	117	128.0/4	128.1/5	128.2/6	128.3/7	-
11	PITCH MG	1	OSC	41.0-2	45	42	43	44	41.7	46
11	PITCH MG	2	OSC	88.0-2	92	89	90	91	88	93
12	PMG CONTROL	1	OSC	48	47	49	-	-	-	-
12	PMG CONTROL	2	OSC	95	94	96	-	-	-	-
13	VDF MG	-	29.0-2	32	30	31	29.7	29.5-6	-	-
14	VDF MG/AFTT	-	39	35	36	-	-	-	-	-
15	CONTROLLER	-	37	33	38	34	-	-	-	-
16	EFFECT TYPE	-	135	137-138	136	139-140	-	-	-	-
17	FX PLACEMENT	-	143	141	142	-	-	-	-	-
18	FX1 PARAM.	-	144-151							
19	FX2 PARAM.	-	154-161							